

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TENNESSEE
AT KNOXVILLE

FILED

2008 MAY 20 1P 6:01

UNITED STATES OF AMERICA)
)
v.)
)
JOHN REECE ROTH)
and)
ATMOSPHERIC GLOW TECHNOLOGIES, INC.)
)
Defendants)

U.S. DISTRICT COURT
EASTERN DIST. TENN.

BY _____ DEPT. CLERK

Criminal No. 3:08-CR- 69

Judges *Varlan - Guyton*

INDICTMENT

The Grand Jury charges that:

INTRODUCTORY ALLEGATIONS

At all times material to this Indictment

Entities and Persons

1. ATMOSPHERIC GLOW TECHNOLOGIES, INC. ("AGT") was a Delaware corporation originally formed as a limited liability corporation in 2000 and later reorganized in 2004 as a publically traded research and development company dedicated to developing and selling products based upon a patented plasma technology known as One Atmospheric Uniform Glow Discharge Plasma ("OAUGDP"). Plasma is a type of physical matter that can be formed by the introduction of electrical energy into gases. AGT's business was exclusively centered on OAUGDP, which represented a specialized use of plasma technology. OAUGDP had been

originally created and developed by the University of Tennessee and the patents were held by the University of Tennessee Research Foundation (“UTRF”). In 2000, UTRF granted AGT the exclusive license to use, develop and market OAUGDP. Since 2000, AGT has been engaged in several different research and development projects under contract with the U.S. government, including the United States Army and the United States Air Force (USAF). Beginning in May 2004, AGT entered into certain military research and development contracts with the USAF with the objective of using the OAUGDP technology to develop plasma actuators for subsonic flight control in munitions systems, including an operational unmanned air vehicle (UAV) for military purposes. A plasma actuator is an electrical device for producing plasma and a means by which such plasma can be applied to a surface, such as an aerodynamic surface like an airfoil or a wing.

2. THE UNIVERSITY OF TENNESSEE KNOXVILLE was a public statewide educational institution that was part of the University of Tennessee System, which was an agency and department of the government of the State of Tennessee (UT). The University of Tennessee Knoxville was organized with and operated through various colleges dedicated to different academic subject areas, including the UT College of Engineering, which in turn included the Department of Electrical and Computer Engineering. As an entity of the State of Tennessee, UT and all components and departments thereof had in full force and effect administrative policies and procedures that obligated all UT employees to comply with State and Federal laws and regulations. As embodied in a Code of Conduct then in effect, UT specifically prohibited actions or activities of its employees that violated federal government security regulations as outlined in any applicable contracts and required employees to report violations of State or Federal laws or regulations. For the time period relevant to this Indictment, UT had in force and effect specific

policies that required all employees to comply with all federal export control laws and regulations. Under these policies, each employee was responsible for understanding any export control requirements related to the employee's work and ensuring that no exports were made contrary to these requirements.

3. THE UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION (UTRF), was a non-profit corporation owned and controlled by the University of Tennessee responsible for the management of intellectual property rights derived from all research and commercial contracts between any UT Department or Faculty and public or private third party entities.

4. THE UNITED STATES AIR FORCE RESEARCH LABORATORY (AFRL) was an agency, department or office of the United States Air Force (U.S. Air Force), an entity of the government of the United States of America, headquartered at Wright Patterson Air Force Base, Ohio, that was responsible for the administration and management of certain research projects and related contracts to develop, *inter alia*, weapon and munition systems, objects, vehicles and all related materials. One of the divisions, known as Directorates, within the AFRL that was responsible for the research and development of weapon and munition items and systems was the AFRL Munitions Directorate (the "Munitions Directorate"), which was headquartered and located at Eglin Air Force Base, Florida.

5. The PHASE I MUNITIONS CONTRACT and the PHASE II MUNITIONS CONTRACT were two separate, successive government research contracts issued by the AFRL Munitions Directorate to AGT for the research and development of plasma actuators as military flight control systems specifically designed, modified and equipped for use on a developmental munition system, such as a small UAV of a type and size similar to that commonly referred to as

a “drone.” The Phase I Munitions Contract was officially granted by the Munitions Directorate to AGT on May 25, 2004, and was formally designated as Contract FA8651-04-C-0225, “A Parametric Study of EHD Plasma Actuators for Munition Control.” The Phase II Munitions Contract was officially granted by the Munitions Directorate to AGT on April 11, 2005, and was formally designated as Contract FA8651-05-C-0116, “Augmented UAV Flight Performance Using Nonthermal Plasma Actuators.” Both contracts were subject to the rules, regulations and restrictions of the Arms Export Control Act, 22 U.S.C. § 2778, *et seq.* (the AECA).

6. JOHN REECE ROTH was a Professor of Electrical Engineering employed by UT since 1978 and as a tenured faculty member since 1984. As such, he was a State of Tennessee employee bearing all the legal responsibilities and duties of a state employee, including honest, full adherence and compliance with all State and Federal laws, regulations and rules, as well as all administrative regulations and rules of UT. While at UT, ROTH worked at the Knoxville, Tennessee campus in the Department of Electrical Engineering and Computer Science, College of Engineering. As a UT employee, ROTH taught, lectured and published extensively on the subject of the physics of plasma science and was a recognized expert in this field. He served as the Director of the UT Plasma Sciences Laboratory (the “Plasma Lab”) which operated at facilities located on the UT Knoxville campus. As a UT Engineering Professor and the Director of the Plasma Lab, ROTH worked with and supervised post-graduate students throughout his career, including Daniel Max Sherman, Xin Dai and Sirous Nourgostar. Beginning in and around 1989, ROTH traveled on multiple occasions in his capacity as a UT faculty member to the People’s Republic of China (the PRC) to visit with and lecture regarding plasma science and technology at certain PRC state operated academic organizations and universities, including the

University of Electronic Science and Technology of China (UESTC), Fudan University, and Tsinghua University. ROTH was named as an Honorary Professor at UESTC in 1992 and at Tsinghua University in 2006. ROTH was also an original shareholder of AGT. Beginning in 2005, he was hired by AGT as a technology transfer consultant through a research services agreement, known as Task Order 102, to work on the USAF Phase II Munitions Contracts.

7. DANIEL MAX SHERMAN was an employee, director and one of the original founders of AGT. Sherman was educated and trained as a physicist at UT, where he was a graduate student under the supervision of ROTH during the 1995-2000 time period. While employed at AGT, Sherman was the Director of Plasma Research. With regard to the Phase I Munitions Contract, Sherman was a program manager and the senior staff scientist. Sherman was named as the co-principal investigator on the USAF Phase II Munitions Contract. In these capacities, Sherman was the lead scientist for both the Phase I and Phase II Munitions Contracts.

8. XIN DAI was a citizen of the People's Republic of China (the PRC) who held a F-1 student visa while living in Knoxville, TN and was enrolled as a graduate student studying for a Ph.D in Electrical Engineering with the UT College of Engineering. DAI was also employed by the UT College of Engineering as a Graduate Research Assistant and Graduate Teaching Assistant from August 2002 until May 2006, during which time he worked under the supervision of ROTH at the Plasma Lab. In May 2005, Dai was assigned by ROTH to work on the Phase II Munitions Contract.

9. TRUMAN ANDREW BONDS was a graduate student studying for a Ph.D. in Electrical Engineering at the UT College of Engineering. Bonds was also employed by the UT College of Engineering as a Graduate Research Assistant from August 2004 until around May

2006, during which time he worked under the supervision of ROTH at the Plasma Lab. Bonds was assigned by ROTH to work on the Phase II Munitions Contract. Bonds was directly employed by AGT in or around June 2006.

10. ROBERT BRIGGS was a citizen of the United Kingdom with a U.S. Permanent Resident Alien immigration status who was living and working in Knoxville, TN. Briggs held a Ph.D. in Aeronautical Engineering and was employed by AGT as a Project Manager for the Phase II Munitions Contract from April 2005 through September 2006. Briggs reported to Alan Wintenberg with regard to his work on the Phase II Munitions Contract.

11. SIROUS NOURGOSTAR was a citizen of Iran who held a F-1 student visa while he lived in Knoxville, TN and was enrolled as a graduate student studying for a Ph.D at the UT College of Engineering. He was also employed by the UT College of Engineering as a Graduate Research Assistant beginning in August 2005 from which time forward he worked under the supervision of ROTH at the Plasma Lab.

12. ALAN WINTENBERG was an employee of AGT and held the position of Director of Engineering. Wintenberg was designated by AGT as the Principal Investigator for the Phase I Munitions Contract. Subsequently, AGT named Wintenberg as the Principal Investigator, Senior Engineer and Project Director with regard to the Phase II Munitions Contract. In that capacity, he was responsible for the project administration, oversight and technical direction of the Phase II Munitions Contract.

13. KIMBERLY KELLY-WINTENBERG was the President and Chief Operating Officer of AGT, as well as one of the original founders of and a shareholder in AGT.

The Arms Export Control Act

14. In furtherance of the national security and foreign policy interests of the United States, the United States regulates and restricts the export of arms, munitions, implements of war, and other defense articles and services, pursuant to the Arms Export Control Act (AECA), 22 U.S.C. § 2778 *et seq.*

15. The regulations which implement and govern such exports are entitled the International Traffic in Arms Regulations (ITAR), 22 C.F.R. §120-130.

16. The ITAR promulgates a list of categories of defense articles and defense services, known as the United States Munitions List (USML), which are subject to regulatory control pursuant to 22 C.F.R. §121.1.

17. “Defense services,” as that term is used in 22 U.S.C. §2778(b)(2) and the ITAR, includes the furnishing of assistance (including training), to foreign persons, whether in the United States or abroad in the design, development, engineering, manufacture, production, assembly, testing, repair, maintenance, modification, operation, demilitarization, destruction, processing or use of defense articles. The definition of defense services includes the furnishing to foreign persons of any ITAR controlled technical data, whether in the United States or abroad.

18. “Defense articles,” as that term is used in 22 U.S.C. §2778(b)(2) and the ITAR, means items, including technical data, designated for placement on the USML as weapons, weapon systems, munitions, aircraft, associated equipment and other implements of war.

19. “Technical data,” as that term is used in 22 U.S.C. §2778(b)(2) and the ITAR, is defined to include “information, other than software as defined in 22 C.F.R. §120.10(a)(4), which is required for the design, development, production, manufacture, assembly, operation,

repair, testing, maintenance or modification of defense articles.” The definition of “technical data” in 22 C.F.R. §120.10(a)(1)&(2) further includes “classified information relating to defense articles and defense services.”

20. No defense articles or defense services, or technical data related thereto, may be exported from the United States to a foreign country without first obtaining a validated license or written approval from the United States Department of State, Directorate of Defense Trade Controls. The definition of “export” in 22 C.F.R. §120.17(a)(4)&(5) includes (a) the disclosure or transfer of technical data to a foreign person or (b) the performance of a defense service on behalf of, or for the benefit of, a foreign person, whether in the United States or abroad.

21. Technical Data concerning the development and application of plasma actuator technology as specifically refined and developed through AGT research for use in the operation of a military munitions system capable of serving as a surveillance, munitions and weapons UAV is specifically controlled for export pursuant to the USML as stated in 22 C.F.R. §121.1. With regard to the specific category of “Aircraft and Associated Equipment,” 22 C.F.R. §121.1, Category VIII(i) states that “technical data ...and defense services...directly related to the defense articles” is designated as a AECA defense article and defense service. This includes any technical data directly related to the defense articles listed in Category VIII (a), that being “[a]ircraft, including but not limited to...drones...which are specifically designed, modified, or equipped for military purposes,” and Category VIII (f), that being “[d]evelopmental aircraft, engines, and components thereof specifically designed, modified, or equipped for military uses or purposes, or developed principally with U.S. Department of Defense funding, excluding such aircraft, engines, and components subject to the jurisdiction of the Department of Commerce.”

Category VIII (h) also provides that AECA export controls extend to all components, parts, accessories, attachments, and associated equipment (including ground support equipment) specifically designed or modified for the articles (a) through (e) in this category....” In addition, 22 C.F.R. §121.1, Category VIII, provides that all defense articles, technical data and defense services related to aircraft and associated equipment described in Category VIII(a) are considered to be Significant Military Equipment as that term is defined in Section 120.7.

22. Persons engaged in the export of defense articles or defense services covered by the USML must be registered with the Department of State, the Directorate of Defense Trade Controls (DDTC), and must apply for and receive a validated license or other approval to export the defense articles and services from the United States.

COUNT ONE

I. THE CONSPIRACY CHARGE

The Grand Jury realleges and incorporates as though set forth in full herein Paragraphs 1 through 22 of the Introductory Allegations of this Indictment.

Beginning in or about January 2004, the exact date being unknown to the Grand Jury, and continuing to on or about late May 2006, in the Eastern District of Tennessee and elsewhere,

JOHN REECE ROTH
and
ATMOSPHERIC GLOW TECHNOLOGIES, INC.,

the defendants herein, and Daniel Max Sherman named herein as a coconspirator, did knowingly and willfully combine, conspire, confederate, and agree together and with other persons known and unknown to the Grand Jury to:

A. Commit an offense against the United States, that is to knowingly and willfully

export, and attempt to export, defense articles and services, including technical data and information relating to certain defense articles and services that were restricted under the Arms Export Control Act (AECA) and the governing regulations contained in the International Traffic in Arms Regulations (ITAR), to one or more foreign nationals, including a citizen of the People's Republic of China (PRC), without having first obtained a validated license or written approval from the United States Department of State, Directorate of Defense Trade Controls, in violation of Title 22, United States Code, Section 2778; and Title 22, Code of Federal Regulations, Sections 125.1, 125.2, 125.3, 126.1, 127.1 and 127.3; and

B. Defraud the United States by impairing, impeding, defeating, frustrating and otherwise obstructing the lawful functions of the U.S. Department of the Defense and the U. S. Air Force, being departments and agencies of the United States of America, in the awarding, management and operation of a military development and research contract and in the effective enforcement of regulations contained in the International Traffic in Arms Regulations.

II. MANNER AND MEANS OF THE CONSPIRACY

1. In order to achieve the unlawful objects of the conspiracy, defendants JOHN REECE ROTH and ATMOSPHERIC GLOW TECHNOLOGIES, INC. ("AGT") did agree to seek to obtain a USAF Munitions Directorate research and development munitions and weapons contract known as the Phase II Munitions Contract whereby defendant AGT would subcontract with defendant ROTH for certain research and development services using the Plasma Lab. The Plasma Lab was owned by UT and operated and controlled by defendant ROTH, who employed more than one foreign national graduate research assistant student, including Xin Dai, a People's Republic of China (PRC) citizen.

2. As a further part of the conspiracy, defendant ROTH and defendant AGT sought to obtain, and did obtain, from the USAF Munitions Directorate a munitions and weapons contract known as the Phase II Munitions Contract, which contract was then subject to AECA controls and restrictions, without disclosing to the USAF that a foreign national from the PRC would be assigned to work on any aspect of that project and by submitting documents that falsely stated that defendant ROTH and defendant AGT would not use any foreign nationals on the Phase II Munitions Contract.

3. As a further part of the conspiracy, defendant ROTH and defendant AGT operated the Phase II Munitions Contract in a manner that allowed a PRC foreign national to work on the project and have access to restricted information.

4. As a further part of the conspiracy, defendant ROTH and defendant AGT permitted and directed a PRC foreign national to work on and have access to AECA controlled and restricted technical equipment while working on the Phase II Munitions Contract.

5. As a further part of the conspiracy, defendant ROTH and defendant AGT permitted and directed a PRC foreign national to work on the Phase II Munitions Contract and, as part of such work, to both create and gain access to AECA controlled and restricted technical data in the form of various reports that were generated specifically in the course of developing a USAF Munitions Directorate contracted munitions system.

6. As a further part of the conspiracy, defendant ROTH and defendant AGT delivered and shared with a PRC foreign national certain AECA controlled and restricted technical data associated with the Phase II Munitions Contract that specifically related to, and was required for, the design, development, production, manufacture, assembly, operation, repair,

testing, maintenance or modification of a specific defense article, that being a unique augmented UAV flight performance capable munitions system that used nonthermal plasma actuators.

III. OVERT ACTS OF THE CONSPIRACY

In furtherance of the conspiracy and in order to effect the objects thereof, defendants JOHN REECE ROTH, AGT and others known and unknown to the Grand Jury, did commit certain overt acts including, but not limited to, those described below.

1. In or about October, 2004, defendant ROTH and an defendant AGT official, that being coconspirator Sherman, communicated with each other to develop a project work arrangement and plan whereby Xin Dai, a PRC foreign national, would work in some capacity on the Phase II Munitions Contract.

2. On or about October 29, 2004, defendant ROTH sent via electronic mail a memorandum and project work plan to Sherman wherein defendant ROTH outlined a proposed work arrangement for two graduate research student assistants he supervised at the Plasma Lab to work on the Phase II Munitions Contract, aspects of which project defendant ROTH noted were subject to export controls.

3. On or about October 31, 2004, Sherman and other AGT staff members, drafted on behalf of defendant AGT a project proposal for the Phase II Munitions Contract to be submitted by defendant AGT to the USAF Munitions Directorate which incorporated the project work plan previously provided to Sherman by defendant ROTH.

4. On or about October 31, 2004, defendant AGT sent to the U.S. Department of Defense via electronic transmission a Small Business Innovative Research Program contract proposal regarding the Phase II Munitions Contract in which defendant AGT, through its

officers, represented that defendant AGT would not use a non-U.S. citizen to work on that contract.

5. On or about December 29, 2004, defendant ROTH sent a note via electronic mail discussing the use of U.S. citizens, not foreign nationals, for research work associated with the Phase II Munitions Contract.

6. On or about January 27, 2005, defendant AGT submitted to the USAF Munitions Directorate a "Contractor Data Sheet" in which defendant AGT represented that all personnel who would work on the Phase II Munitions Contract were U.S. citizens.

7. In about April 2005, defendant ROTH and Sherman communicated via electronic mail proposed drafts of a subcontract between defendant AGT and defendant ROTH relating to the Phase II Munitions Contract, known as the "Task Order 102," wherein reference was made to AECA export controls, which final draft was later submitted by Sherman that excluded certain references to the application of export controls to the project.

8. On or about May 5, 2005, Kelly-Wintenberg, acting on behalf of defendant AGT, signed the final version of the subcontract known as Task Order 102 which assigned Xin Dai, a PRC national, to work on that project although such participation of a foreign national in the AGT project represented a violation of the AECA.

9. On or about May 16, 2005, defendant ROTH sent a letter to Xin Dai, a PRC national, that assigned him to work on the Phase II Munitions Contract and stated that the project objective was to develop a plasma actuator design for use on a UAV for the U.S. Air Force.

10. On or about June 29, 2005, defendant AGT acting through Sherman provided, or caused to be provided, to Xin Dai, a PRC national, a copy of the Phase I Munitions Contract

Final Report which contained AECA restricted technical data regarding a USAF defense munitions system.

11. On or about October 10, 2005, defendants ROTH and AGT provided, and caused to be provided, to Xin Dai, a PRC national, a copy of the AGT Quarterly Report I and the AGT Quarterly Report II, both of which documents contained specific AECA restricted technical data associated with the Phase II Munitions Contract.

12. On or about November 28, 2005, Xin Dai, a PRC national, created and transmitted his Phase II Munitions Contract Weekly Report 26 to defendant ROTH and Sherman which contained AECA restricted technical data regarding a USAF defense munitions system.

13. On or about November 29, 2005, defendants ROTH and AGT caused Truman Bonds to transmit to Xin Dai, a PRC national, a document known as "tbonds112905.doc" which contained AECA restricted technical data regarding a USAF defense munitions system.

14. On or about December 13, 2005, defendants ROTH and AGT caused Truman Bonds to transmit to Xin Dai, a PRC national, a document known as "tbonds121305.doc" which contained AECA restricted technical data regarding a USAF defense munitions system.

15. On or about December 21, 2005, defendants ROTH and AGT caused Truman Bonds to transmit to Xin Dai, a PRC national, a document known as "tbonds122105.doc" which contained AECA restricted technical data regarding a USAF defense munitions system.

16. On or about January 3, 2006, defendants ROTH and AGT caused Truman Bonds to transmit to Xin Dai, a PRC national, a document known as "tbonds122705.doc" which contained AECA restricted technical data regarding a USAF defense munitions system.

17. On or about January 3, 2006, defendants ROTH and AGT caused Truman Bonds

to transmit to Xin Dai, a PRC national, a document known as “tbonds010306.doc” which contained AECA restricted technical data regarding a USAF defense munitions system.

18. On or about January 10, 2006, Xin Dai, a PRC national, created and transmitted his Phase II Munitions Contract Weekly Report 31 to defendants ROTH and AGT which contained AECA restricted technical data regarding a USAF defense munitions system.

19. On or about January 12, 2006, defendants ROTH and AGT caused Truman Bonds to transmit to Xin Dai, a PRC national, a document known as “tbonds011206.doc” which contained AECA restricted technical data regarding a USAF defense munitions system.

20. On or about January 16, 2006, Xin Dai, a PRC national, created and transmitted his Phase II Munitions Contract Weekly Report 32 to defendants ROTH and AGT which contained AECA restricted technical data regarding a USAF defense munitions system.

21. On or about May 9, 2006, Xin Dai, a PRC national, created and transmitted his Phase II Munitions Contract Weekly Report 45 to defendants ROTH and AGT which contained AECA restricted technical data regarding a USAF defense munitions system.

All in violation of Title 18, United States Code, Section 371.

COUNT TWO

1. The Grand Jury realleges and incorporates as though set forth in full herein Paragraphs 1 through 22 of the Introductory Allegations of this Indictment.

2. On or about June 29, 2005, in the Eastern District of Tennessee and elsewhere, the defendant ATMOSPHERIC GLOW TECHNOLOGIES, INC. (“AGT”) did knowingly and willfully export and attempt to export AECA restricted technical data to a foreign national, in that defendant AGT, through coconspirator Daniel Max Sherman, did provide in Knoxville, TN

to a citizen of the People's Republic of China, that being Xin Dai, a document that was known as the Phase I Final Report. Said Report was a detailed presentation of the research results of the Phase I Munitions Contract as to the development of a refined plasma actuator technology for a specific USAF aviation munitions project. The Phase I Final Report contained specific technical data and information concerning a defense munitions system of the United States that represented AECA restricted information. Defendant AGT, acting through Sherman, provided to Xin Dai said Report without first having obtained a validated license or written approval from the United States Department of State, Directorate of Defense Trade Controls in violation of Title 22, United States Code, Section 2778; Title 22, Code of Federal Regulations, Sections 121.1, 125.1-3 127.1 and 127.3; and Title 18, United States Code, Section 2.

COUNTS THREE TO EIGHT

1. The Grand Jury realleges and incorporates as though set forth in full herein Paragraphs 1 through 22 of the Introductory Allegations of this Indictment.
2. On or about the dates listed below for each Count of the Indictment, in the Eastern District of Tennessee and elsewhere, the defendants JOHN REECE ROTH and ATMOSPHERIC GLOW TECHNOLOGIES, INC. ("AGT") did knowingly and willfully export, cause to be exported, and attempt to export AECA restricted technical data to a foreign national, in that defendants ROTH and AGT, through Daniel Max Sherman, did provide in Knoxville, TN to a citizen of the People's Republic of China, that being Xin Dai, certain specific information through the below listed documents, each of which contained specific research results of the Phase II Munitions Contract as to the development of a refined plasma actuator technology for a specific USAF aviation munitions project and which contained technical data and information

concerning a defense munitions system of the United States that represented restricted information under the AECA; and did so without having first obtained a validated license or written approval from the U.S. Department of State, Directorate of Defense Trade Controls in violation of Title 22, United States Code, Section 2778; Title 22, Code of Federal Regulations, Sections 121.1, 125.1-3, 127.1 and 127.3; and Title 18, United States Code, Section 2.

	<u>Document</u>	<u>Date</u>	<u>Location</u>
<u>COUNT THREE:</u>	tbonds112905.doc	November 29, 2005	Knoxville, TN
<u>COUNT FOUR:</u>	tbonds121305.doc	December 13, 2005	Knoxville, TN
<u>COUNT FIVE:</u>	tbonds122105.doc	December 21, 2005	Knoxville, TN
<u>COUNT SIX:</u>	tbonds122705.doc	January 3, 2006	Knoxville, TN
<u>COUNT SEVEN:</u>	tbonds010306.doc	January 3, 2006	Knoxville, TN
<u>COUNT EIGHT:</u>	tbonds011206.doc	January 12, 2006	Knoxville, TN

COUNT NINE

1. The Grand Jury realleges and incorporates as though set forth in full herein Paragraphs 1 through 22 of the Introductory Allegations of this Indictment.

2. On or about October 10, 2005, in the Eastern District of Tennessee and elsewhere, the defendants JOHN REECE ROTH and ATMOSPHERIC GLOW TECHNOLOGIES, INC. (“AGT”) did knowingly and willfully export, cause to be exported, and attempt to export AECA restricted technical data to a foreign national, in that defendants ROTH and AGT did provide in Knoxville, TN to a citizen of the People’s Republic of China, that being Xin Dai, specific information in the form of the July 11, 2005, AGT Quarterly Report I, which document contained specific research results of the Phase II Munitions Contract as to the development of a refined

plasma actuator technology for a specific USAF aviation munitions project. The AGT Quarterly Report I contained specific technical data and information concerning a defense munitions system of the United States that represented AECA restricted information, which defendants ROTH and AGT provided to Xin Dai without having first obtained a validated license or written approval from the United States Department of State, Directorate of Defense Trade Controls in violation of Title 22, United States Code, Section 2778; Title 22, Code of Federal Regulations, Sections 121.1, 125.1-3, 127.1 and 127.3; and Title 18, United States Code, Section 2.

COUNT TEN

1. The Grand Jury realleges and incorporates as though set forth in full herein Paragraphs 1 through 22 of the Introductory Allegations of this Indictment.

2. On or about October 10, 2005, in the Eastern District of Tennessee and elsewhere, the defendants JOHN REECE ROTH and ATMOSPHERIC GLOW TECHNOLOGIES, INC. (“AGT”) did knowingly and willfully export, cause to be exported, and attempt to export AECA restricted technical data to a foreign national, in that defendants ROTH and AGT did provide in Knoxville, TN to a citizen of the People’s Republic of China, that being Xin Dai, specific information in the form of the October 10, 2005, AGT Quarterly Report II, which document contained specific research results of the Phase II Munitions Contract as to the development of a refined plasma actuator technology for a specific USAF aviation munitions project. The AGT Quarterly Report II contained specific technical data and information concerning a defense munitions system of the United States that represented AECA restricted information, which defendants ROTH and AGT provided to Xin Dai without having first obtained a validated license or written approval from the United States Department of State, Directorate of Defense Trade

Controls in violation of Title 22, United States Code, Section 2778; Title 22, Code of Federal Regulations, Sections 121.1, 125.1-3, 127.1 and 127.3; and Title 18, United States Code, Section 2.

COUNT ELEVEN

1. The Grand Jury realleges and incorporates as though set forth in full herein Paragraphs 1 through 22 of the Introductory Allegations of this Indictment.

2. On or about May 13, 2006, in the Eastern District of Tennessee and elsewhere, the defendant JOHN REECE ROTH, did knowingly and willfully export and attempt to export AECA restricted technical data to the People's Republic of China (PRC), in that the defendant traveled from Knoxville, TN and transported to the PRC specific information, that being a computer file named "DARPA-BAA-05-19-vol-1 final.pdf" containing a thirty page document titled "Novel Plasma Actuator Technologies for Advanced Flight Components" (the "DARPA Proposal"), which document contained specific research results associated with the development of a refined plasma actuator technology for a specific USAF aviation munitions project. The defendant did so export and attempt to export the DARPA Proposal, which contained technical data concerning a defense munitions system of the United States that represented AECA restricted information, without having first obtained a validated license or written approval from the United States Department of State, Directorate of Defense Trade Controls in violation of Title 22, United States Code, Section 2778; Title 22, Code of Federal Regulations, Sections 121.1, 125.1-3, 127.1 and 127.3.; and Title 18, United States Code, Section 2.

COUNT TWELVE

1. The Grand Jury realleges and incorporates as though set forth in full herein Paragraphs 1 through 22 of the Introductory Allegations of this Indictment.

2. On or about May 13, 2006, in the Eastern District of Tennessee and elsewhere, the defendant JOHN REECE ROTH, did knowingly and willfully export and attempt to export AECA restricted technical data to the People's Republic of China (PRC), in that the defendant traveled from Knoxville, TN and transported to the PRC technical data, that being the USAF Phase II Contract Weekly Report 26 dated November 28, 2005 ("Weekly Report 26"), containing research results associated with the Phase II Munitions Contract involving the development of a refined plasma actuator technology for a specific USAF aviation munitions project. The defendant did so export and attempt to export said Weekly Report 26, which contained technical data concerning a defense munitions system of the United States that represented AECA restricted information, without having first obtained a validated license or written approval from the United States Department of State, Directorate of Defense Trade Controls in violation of Title 22, United States Code, Section 2778; Title 22, Code of Federal Regulations, Sections 121.1, 125.1-3, 127.1 and 127.3; and Title 18, United States Code, Section 2.

COUNT THIRTEEN

1. The Grand Jury realleges and incorporates as though set forth in full herein Paragraphs 1 through 22 of the Introductory Allegations of this Indictment.

2. On or about May 13, 2006, in the Eastern District of Tennessee and elsewhere, the defendant JOHN REECE ROTH, did knowingly and willfully export and attempt to export

AECA restricted technical data to the People's Republic of China (PRC), in that the defendant traveled from Knoxville, TN and transported to the PRC technical data, that being the USAF Phase II Contract Weekly Report 45 dated May 9, 2006 ("Weekly Report 45"), which contained research results associated with the Phase II Munitions Contract involving the development of a refined plasma actuator technology for a specific USAF aviation munitions project. The defendant did so export and attempt to export said Weekly Report 45 containing technical data concerning a defense munitions system of the United States that represented AECA restricted information, without having first obtained a validated license or written approval from the United States Department of State, Directorate of Defense Trade Controls in violation of Title 22, United States Code, Section 2778; Title 22, Code of Federal Regulations, Sections 121.1, 125.1-3, 127.1 and 127.3; and Title 18, United States Code, Section 2.

COUNT FOURTEEN

1. The Grand Jury realleges and incorporates as though set forth in full herein Paragraphs 1 through 22 of the Introductory Allegations of this Indictment.

2. On or about May 20, 2006, in the Eastern District of Tennessee and elsewhere, the defendant JOHN REECE ROTH, did knowingly and willfully export, cause to be exported and attempt to export AECA restricted technical data to a foreign national located in the People's Republic of China (PRC), in the defendant caused a foreign national, that being Xin Dai, to provide via electronic communication from Knoxville, TN to a foreign national and citizen of the PRC, that being Shan Duan Zhang, a document which contained technical data from the Phase II Munitions Contract involving the development of a refined plasma actuator technology for a specific USAF aviation munitions project. The defendant did so cause to be provided to a

foreign national said document containing technical data and information concerning a defense munitions system of the United States, which represented restricted ACEA information, without having first obtained a validated license or written approval from the United States Department of State, Directorate of Defense Trade Controls in violation of Title 22, United States Code, Section 2778; Title 22, Code of Federal Regulations, Sections 121.1, 125.1-3, 127.1 and 127.3; and Title 18, United States Code, Section 2.

COUNT FIFTEEN

1. The Grand Jury realleges and incorporates as though set forth in full herein Paragraphs 1 through 22 of the Introductory Allegations of this Indictment.

2. From in or about October 2005 through about May 2006, in the Eastern District of Tennessee and elsewhere, the defendants JOHN REECE ROTH and ATMOSPHERIC GLOW TECHNOLOGIES, INC. ("AGT"), did knowingly and willfully export, cause to be exported and attempt to export AECA restricted defense services to a foreign national, in that defendants ROTH and AGT, through coconspirator Daniel Max Sherman, authorized, directed, instructed, and otherwise furnished assistance, gave training, allowed unrestricted access and provided in Knoxville, TN to a citizen of the People's Republic of China, that being Xin Dai, certain specific technical equipment and related technical information in the form of the Displacement Sensing Unstable Equilibrium Thrust Stand (the "DUET Stand" or commonly referred to as the "Force Stand"), which equipment had been designed, developed, engineered, manufactured, produced, assembled, tested and operated in connection with the Phase II Munitions Contract involving the development of a refined plasma actuator technology for a specific USAF aviation munitions project. Defendants ROTH and AGT did so provide defense services to Xin Dai regarding the

operation of the DUET Stand by furnishing and allowing the use of specific technical data and information concerning a defense munitions system of the United States that represented AECA restricted information without having first obtained a validated license or written approval from the U.S. Department of State, Directorate of Defense Trade Control, in violation of Title 22, United States Code, Section 2778; Title 22, Code of Federal Regulations, Sections 121.1, 125.1-3, 127.1 and 127.3; and Title 18, United States Code, Section 2.

COUNT SIXTEEN

1. The Grand Jury realleges and incorporates as though set forth in full herein Paragraphs 1 through 22 of the Introductory Allegations of this Indictment.

2. From in or about October 2005 through about May 2006, in the Eastern District of Tennessee and elsewhere, the defendant JOHN REECE ROTH did knowingly and willfully export, cause to be exported and attempt to export AECA restricted defense services to a foreign national in Knoxville, TN, in that the defendant gave, and caused to be given, authorization, direction and instruction, and furnished assistance and training with regard to; and allowed unrestricted access to; and otherwise provided to a citizen of the Republic of Iran, that being Sirous Nourgostar, certain specific technical equipment and related technical information in the form of the Displacement Sensing Unstable Equilibrium Thrust Stand (the “DUET Stand” or commonly referred to as the “Force Stand”), which equipment had been designed, developed, engineered, manufactured, produced, assembled, tested and operated in connection with the Phase II Munitions Contract for the development of a refined plasma actuator technology for a specific USAF aviation munitions project. The defendant did so provide defense services to Sirous Nourgostar regarding the operation of the DUET Stand by furnishing and allowing the use

of technical data concerning a defense munitions system of the United States that represented restricted information under the AECA without having first obtained a validated license or written approval from the U.S. Department of State, Directorate of Defense Trade Control, in violation of Title 22, United States Code, Section 2778; Title 22, Code of Federal Regulations, Sections 121.1, 125.1-3, 127.1 and 127.3; and Title 18, United States Code, Section 2.

COUNT SEVENTEEN

1. The Grand Jury realleges and incorporates as though set forth in full herein Paragraphs 1 through 22 of the Introductory Allegations of this Indictment.

2. On or about August 22, 2007, in the Eastern District of Tennessee and elsewhere, defendant JOHN REECE ROTH did knowingly and willfully export, caused to be exported, and attempt to export AECA restricted technical data to a foreign national in Knoxville, TN, in that the defendant did provide in Knoxville, TN to a citizen of the Republic of Iran, that being Sirous Nourgostar, a document which contained technical data from the Phase II Munitions Contract involving the development of a refined plasma actuator technology for a specific USAF aviation munitions project. The defendant did so provide to a foreign national said document containing technical data concerning a defense munitions system of the United States, which represented restricted ACEA information, without having first obtained a validated license or written approval from the United States Department of State, Directorate of Defense Trade Controls in violation of Title 22, United States Code, Section 2778; Title 22, Code of Federal Regulations, Sections 121.1, 125.1-3, 127.1 and 127.3; and Title 18, United States Code, Section 2.

COUNT EIGHTEEN

1. The Grand Jury realleges and incorporates as though set forth in full herein Paragraphs 1 through 22 of the Introductory Allegations of this Indictment.

2. In about May 2006, in the Eastern District of Tennessee and elsewhere, defendant JOHN REECE ROTH devised and intended to devise a scheme and artifice to defraud and deprive the State of Tennessee and an agency and institution thereof, that being the University of Tennessee, of its intangible right to the honest services of its employees, performed free from deceit, self-enrichment, self-dealing and concealment; said scheme and artifice being that the defendant, being fully informed and instructed as to the applicable federal and state laws, regulations and rules, would by deceit, craft, trickery and dishonest means use his position as an University of Tennessee Professor of Engineering to knowingly, willfully and unlawfully export, cause to be exported, and attempt to export AECA restricted technical data to a foreign national for his personal benefit and to the actual economic detriment of and loss to the University of Tennessee.

3. On or about May 20, 2006, in the Eastern District of Tennessee and elsewhere, for the purpose of executing and attempting to execute the aforesaid scheme and artifice to defraud and deprive the University of Tennessee of honest services, the defendant did knowingly cause to be sent and delivered via wire communications certain AECA restricted technical data to a foreign national located in the People's Republic of China (PRC), in that the defendant caused a foreign national and citizen of the PRC, that being Xin Dai, to provide via electronic mail from Knoxville, TN to a foreign national and citizen of the PRC, that being Shan Duan Zhang, specific information in an electronic format, namely a document which contained technical data from the

Phase II Munitions Contract involving the development of a refined plasma actuator technology for a specific USAF aviation munitions project, this being done in direct violation of existing UT policies and specific instructions from UT administrators and without having first obtained a validated license or written approval from the United States Department of State, Directorate of Defense Trade Controls which ROTH then well knew was in violation of Title 22, United States Code, Section 2778; Title 22, Code of Federal Regulations, Sections 121.1, 125.1-3, 127.1 and 127.3; and Title 18, United States Code, Section 2.

All in violation of 18 U.S.C. §1343 and §1346.

A TRUE BILL:

s/Foreperson
FOREPERSON OF THE GRAND JURY

JAMES R. DEDRICK
United States Attorney

By: s/Jeffrey E. Theodore
JEFFREY E. THEODORE
Assistant United States Attorney

By: s/A. Wm. Mackie
A. WM. MACKIE
Assistant United States Attorney